APPENDIX G: UTILITIES

EXISTING CONDITIONS

Regulated Utilities

The principal County concern with respect to regulated and similar types of utilities is aesthetics. Many County citizens view aboveground wires as visually unattractive, and underground wiring has been required since 1985 for all new development in the County.

Wireless telecommunications infrastructure has given rise to another set of aesthetic concerns with the proliferation of telecommunications towers. The development of new technologies has revolutionized the field of wireless communications. As a result, consumer demand for wireless telecommunication services – such as cellular and PCS phones, paging devices, two-way radios, and public safety services--has increased sharply during the 1990s. The fast-paced wireless communications industry has presented local governments the challenge of guiding the siting of the industry's antennas in its communities, mainly antennas and their support structures. At times, it is difficult to find suitable locations that meet both the expectations of the wireless industry and the aesthetic goals of the community.

Support structures are typically needed for the placement of an industry's antennas to deliver wireless communications. Antennas must be at specific heights to transmit and receive radio frequencies adequately. Existing support structures – such as buildings, utility poles, pylons, church steeples, water towers, highway signs, lighting poles, and existing towers – can help accommodate the industry's antennas when they are located in or near a provider's service area. Basically, any structure that meets the height requirements needed by the service provider can be adapted to accommodate an antenna. The industry often uses existing support structures when available, but when they are not available the communications provider must construct a support structure – usually a communications pole or tower –capable of supporting its antenna.

Sewer

The vast majority of the County is comprised of soils that have one or more significant limitations for septic systems. In addition, many areas of the County have a high water table eliminating the possibility of utilizing a septic system to adequately treat the sewage. Therefore, a sanitary sewer system is the preferred way to effectively handle the treatment of the sewage in the County.

York County's role in public sewerage is to collect wastewater from the source and transmit it to the Hampton Roads Sanitation District (HRSD) system. HRSD is a regional authority which provides state-of-the-art wastewater treatment facilities, one of which, the York River Treatment Plant comprises 51 acres and is currently configured to provide tertiary treatment to 15 million gallons per day (MGD) and is expandable to 30 MGD. The plant's outfall is into the York River at the Virginia Power Yorktown Power Plant. The Yorktown Plant treats all the sewerage from the lower portion of the County, all the sewerage from the City of Poquoson and most of the sewerage from the City of Hampton. The ultimate capacity of the York River Plant should provide sewerage treatment to any new development within its service area in the foreseeable future. The sewerage from the upper County is treated at the James River Plant located in James City County. These treatment plants are interconnected and the sewerage can be rerouted in case of emergencies.

HRSD annually prepares a five-year capital improvements program that contains those construction projects and engineering studies that are planned by HRSD over the next five years. The five-year projection shows when projects are expected to begin and an estimate of the amount of funds expected to be spent each fiscal year for planning purposes. The HRSD Commission does not approve the budget but simply adopts the plan. When each project is ready to proceed, it is brought to the Commission individually for approval. This allows for greater flexibility in scheduling projects and provides for the inclusion of an emergency project if needed.

PROJECT TITLE	DESCRIPTION	ESTIMATED COST

PROJECT TITLE	DESCRIPTION	ESTIMATED COST
Lightfoot Interceptor Force Main	This project is part of a lease purchase agreement with the County. It consists of the design and construction of approximately 14,000 feet of force main beginning at the terminus of North Trunk Interceptor Force Main Part C and running along Lightfoot Road to Barlows Corner.	$636,800
Colonial Williamsburg Pump Station Replacement	Replace a pump station that is undersized to meet present and future flows.	$1,404,000
York River Treatment Plant: Re-Use Facilities	This project consists of the design and construction of a treated effluent polishing system to meet the water needs of two industries adjacent to the York River Treatment Plant (Amoco and Virginia Power).	$1,054,400
York River: Gloucester Interceptor Force Main Evaluation	Conduct a study to decide if the settling of solids and sediment in the line is a problem and, if so, what should be done about it.	$50,000
York River Treatment Plant: Odor Control Improvements	Design modifications to the headworks scrubber system at York River to meet current standards for process and redundancy.	$675,000
Source: Hampton Roads Sanitation District Capital Improvements Program, FY 1999-FY 2003		

Table 31

In addition the CIP includes a list of long-range projects projected for the next five to fifteen years, including several in York County

PROJECT TITLE	DESCRIPTION	ESTIMATED COST
Tabb Pressure Reducing Station	Design and construction of a pressure reducing station on Yorktown Road	$819,000
Yorktown Interceptor Force Main Parallel	Design and construction of approximately 11,000 feet of 36" force main and 25,516 feet of 48" force main to augment existing lines	$6,748,200
Kiln Creek Interceptor Force Main	This 24" force main is proposed to tie to the 24" force main going through the Villages of Kiln Creek to the existing York River System.	$842,400
Source: Hampton Roads Sanitation District Capital Improvements Program, FY 1999-FY 2003		

Table 32

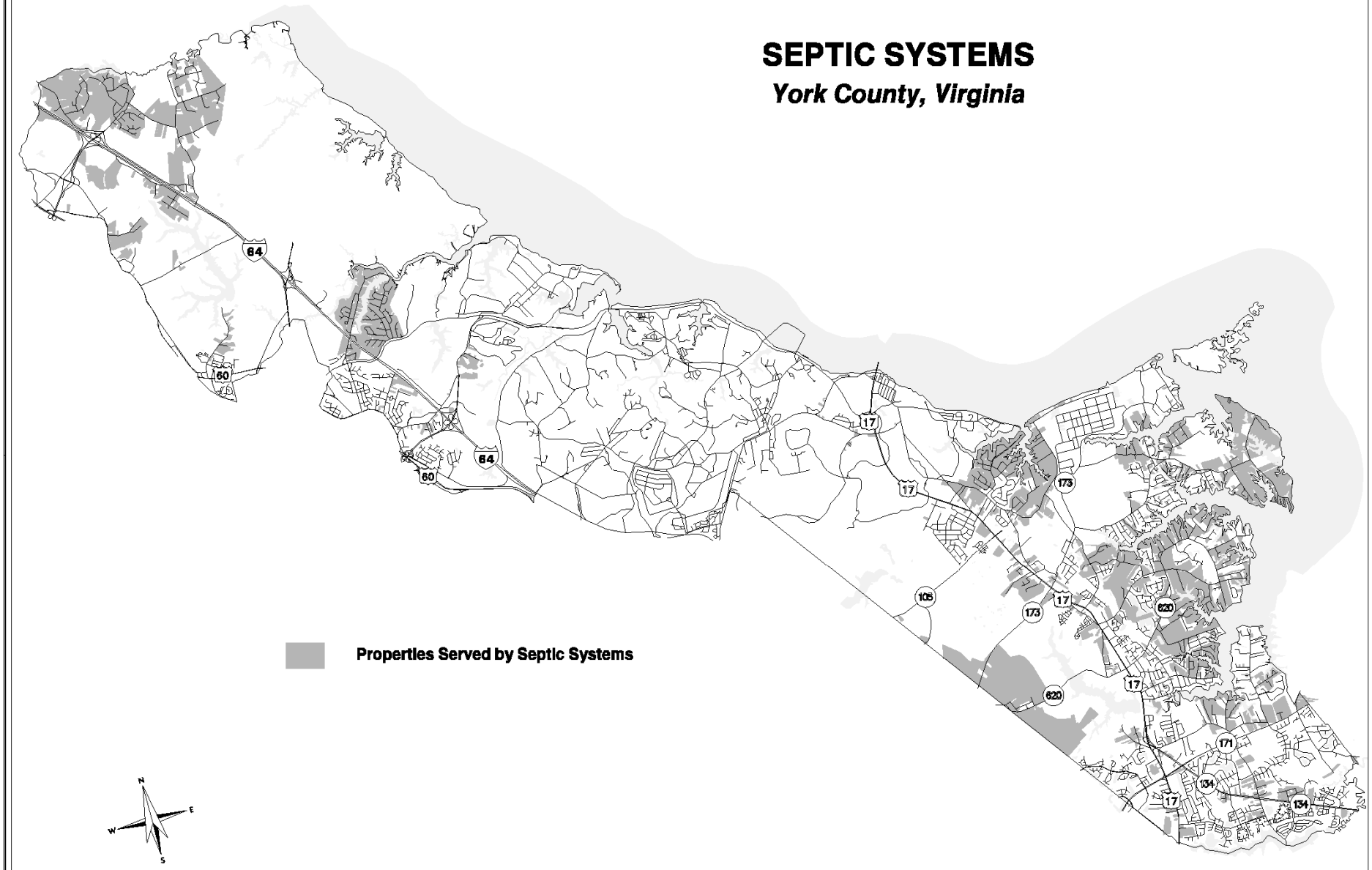
York County's Utilities Strategic Capital Plan lists and prioritizes sanitary sewer, water and stormwater projects to existing residential areas based on criteria established by the Board of Supervisors. This plan, originally titled Target 2000, is revised periodically. The most recent plan, now titled the Utilities Strategic Capital Plan, outlines the sewer projects and schedules those projects anticipated to be started through the year 2006. The program is self supporting and is funded through several sources of revenue including, the connection fees charged to the residents receiving service, connection fees charged to developers and from one-half of the revenue generated by the meals tax approved by the voters in a referendum.

Future sewer service areas that are not currently under way but are included in the Utilities Strategic Capital Plan are, Tide Mill, Dare Heights, Skimino Hills, Marlbank, Back Creek Road, the Falcon Road/Loblolly Drive area, Allens Mill, the Darby-Firby area, Burts Road, Queens Lake, Schenck Estates, Waterview Road, Wildey Road, Hornsbyville Road, York Point, Old Wormley Creek, Banburry Cross, Old Quaker Estates, Kentucky Farms, Whites/Faulkner, Oak/Dogwood, Springfield Road, Skimino Farms, and Mooretown Road.

In undeveloped areas of the County, the developer of a project is required to extend the necessary sewer service to that development and then dedicate the system to the County for operation and maintenance. The sanitary sewer system is required to be designed to provide service to the proposed development and in some cases over designed (lines larger and deeper) to provide for the extension of the system to accommodate future development without the requirement of an additional pump station.

SEPTIC SYSTEMS

York County, Virginia



May 15, 2001

Prepared by York County
Computer Support Services

Because of the County's topography and its many peninsulas, alternative sanitary sewer systems, such as vacuum sewer systems, are frequently used. Technology for vacuum systems has been around for years, but actual application of these systems in the collection of sanitary sewer is relatively new. The use of grinder pumps can also be cost-effective and be utilized in specific applications where gravity or vacuum systems are not economically or technically feasible.

Stormwater Management

Stormwater management has evolved over the years from providing proper drainage for prevention of flooding to controlling both quantity and quality of flow to pre-development conditions. This is done through a variety of Best Management Practices (BMPs). BMPs include wet ponds, dry ponds, infiltration systems, porous pavement, and even grass swales. The qualitative aspects of drainage are especially important to Chesapeake Bay Preservation and Watershed Management Areas.

Stormwater management systems must fulfill the following basic objectives:

- Prevent flooding and subsequent property damage caused by runoff from rainfall events.
- Control flow leaving a site after development to the pre-development rate unless it is discharging to an adequate system.
- Release water that is as free from sediment and normal water-borne pollutants as possible.
- Be maintainable so that they continue to function as designed.

All of these objectives should be accommodated in the *initial* design process since it is difficult and expensive to retrofit systems that fail to accommodate one or more of the objectives.

York County is composed of 10 major drainage basins, which have been divided into a total of 49 sub-basins.

The County completed a comprehensive Stormwater Management Plan that has been incorporated into the Utilities Strategic Capital Plan. County staff studied the various drainage sub-basins under full development conditions based on projected land use. For each sub-basin, the hydrology was computer-modeled and alternative solutions were analyzed to develop the optimum solution in terms of cost and effectiveness. Water quality issues were also taken into consideration. The plan makes recommendations for on-site and regional solutions. The plan suggested that stormwater management systems (BMPs) serving multiple properties may be more effective for controlling the quality and quantity of stromwater runoff than individual structural BMPs for every parcel.

Since the adoption of the Stormwater Section of the Utilities Strategic Capital Plan, the County has made significant progress in abating erosion and correcting the identified drainage problems. In specific, the Penniman Road Ravine, Queens Lake Ravine, Skimino, Mount Vernon School and Tabbs Lake Middle School have been completed. Future stormwater service areas that are not currently under way but are included in the Utilities Strategic Capital Plan are Lackey/Browns Park, Carver Gardens, Country Club Acres, Lakeside Forest, Brandywine, Woodlake, Greensprings, Nelson Park, Moorehouse Road, Seaford, Marlbank Farms, Magruder Woods, and Terrebonne.

The Board of Supervisors recently formed a citizen Drainage Advisory Committee to further review and prioritize the stormwater projects and provide a forum for citizen involvement.

As noted in the Environment element, other regulations have an impact on stormwater as well. The County will be permitted under the National Pollutant Discharge Elimination System program of the Clean Water Act by the year 2003. In addition the Virginia Department of Environmental Quality plays a greater role in monitoring the environmental effects of the County's stormwater projects for compliance with state regulations.

Water

The water supply system in York County is composed of several different suppliers and distributors. The largest single component of the potable water system is Newport News Waterworks (NNWW), which is operated by the City of Newport News and supplies approximately 5.6 MGD to customers throughout the County. In the lower County, NNWW is the sole water supplier to areas such as Dare, Grafton, Seaford, Yorktown, Lackey, and Tabb. In the upper County, NNWW supplies water to Nelson Park, York Terrace, and Carver Gardens via a distribution system owned, operated, and maintained by Sydnor Hydrodynamics. Mountain Lake Water Company also distributes potable water provided by NNWW via a privately owned system in a section of Carver Gardens.

The City of Williamsburg supplies approximately 0.9 MGD of water to York County residents in the Bypass Road and Hubbard Lane areas. The source of this water is surface water collected in the Waller Mill Reservoir. Approximately 3% of the water supplied to the County by Williamsburg serves the Hubbard Lane system, which is composed of two distributors: York County Public Utilities and Sydnor Hydrodynamics. York County distributes approximately 20% of this water to customers in Royal Grant and Parkway Estates; Sydnor sells the remaining 80% to the Queens Lake subdivision via a privately owned distribution system.

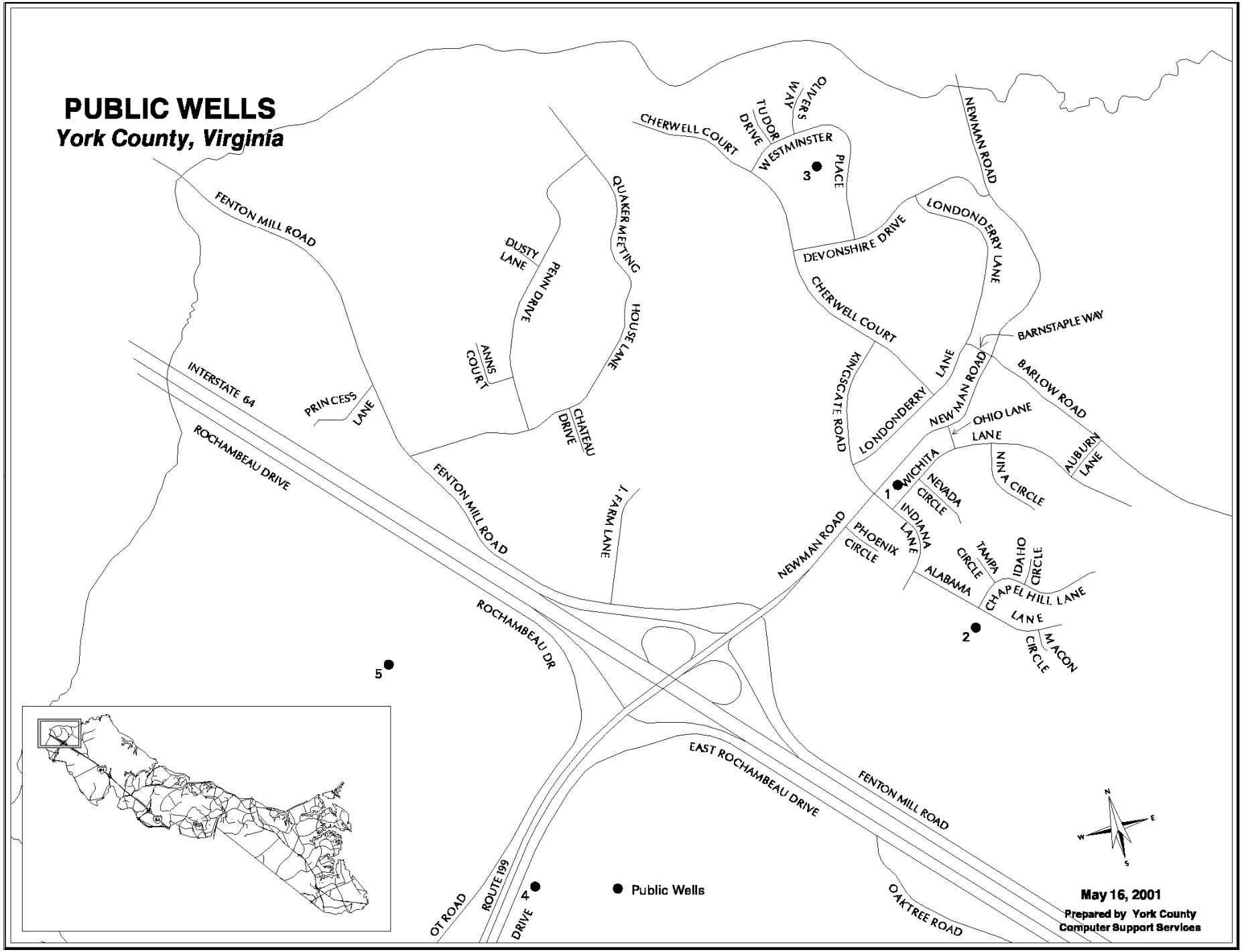
The James City Service Authority (JCSA) supplies and distributes approximately 5000 gallons per day (gpd) to upper County customers. The Ewell Industrial Park uses approximately 700 gpd and the Mooretown Road area uses the remaining 4,300 gpd. The JCSA draws water mostly from wells located in James City County.

York County also supplies and distributes approximately 0.087 MGD to upper County customers in Skimino, Banbury Cross, and Lightfoot via two separate small public water supply and distribution systems. The source water is groundwater from five wells drawing from the Chickahominy-Piney Point aquifer. These groundwater-based stand-alone systems provide water for residential and commercial areas. The three Skimino/Banbury Cross wells serve 265 connections, most of them residential, in the upper County east of Interstate 64. The two Lightfoot wells serve five commercial customers in the upper County west of I-64. The Virginia Department of Health monitors the drinking water from these wells for water quality. The State Water Control Board, through the Department of Environmental Quality, monitors the wells for withdrawal amounts.

While cost and designs of water distribution systems are important considerations, the single most critical concern with respect to expanding the water service is the acquisition and development of a long-term supply of raw water. As mentioned above, the agreement entered into with the City of Newport News includes participation by the County in the Raw Water Study Group (RSWG) formed in September of 1988. The other member jurisdictions in the RWSG include, the cities of Newport News, Hampton, Poquoson and Williamsburg, and James City County. As the region grows, so too will the water demand, and as the year 2000 approaches the safe yield of the raw water supply is diminishing. The RWSG has estimated that an additional 35 MGD (million gallons per day) will be required by 2040. This represents an increase of approximately 60% over the existing 61 MGD safe yield capacity. Meeting this demand will require both short-term and long-term strategies because of the extended time lead time required to secure environmental approvals from the Commonwealth of Virginia, the Army Corps of Engineers and the Environmental Protection Agency (EPA). The Army Corps of Engineers and the EPA have stated that no new impoundments to create reservoirs would be approved unless it served the needs of a region.

York County has entered into an agreement with the City of Newport News for Newport News Waterworks to assume responsibility for **all** potable water service to the County except those areas served by Williamsburg or the JCSA. This agreement, however, is contingent on the Army Corps of Engineers' approval of the proposed King William Reservoir project. Because of uncertainty as to whether or not the reservoir will ultimately be approved by the Corps of Engineers, a contract has been prepared that is not contingent on the reservoir. When the contract is fully executed, which is expected to occur by the year 2006, NNWW will assume ownership and control of the five wells in the County that supply water to the Skimino and Lightfoot areas. At that time, York County will no longer be a water provider.

The Utilities Strategic Capital Plan also addresses the extension of public water service to existing residential areas served by private wells or private water suppliers. Just like the sewer extensions the Board of Supervisors established criteria which prioritize the areas of the County which will receive


PUBLIC WELLS
York County, Virginia
FENTON MILL ROAD
INTERSTATE 64
ROCHAMBEAU DRIVE
PRINCESS LANE
DUSTY LANE
ANNS COURT
PENN DRIVE
QUAKER MEETING HOUSE LANE
CHATEAU DRIVE
FENTON MILL ROAD
L. FARM LANE
ROCHAMBEAU DR
CHERWELL COURT
TUDOR DRIVE
OLIVERS WAY
WESTMINSTER PLACE
NEWMAN ROAD
DEVONSHIRE DRIVE
LONDONDERRY LANE
CHERWELL COURT
KINGSGATE ROAD
LONDONDERRY LANE
NEWMAN ROAD
BARNSTAPLE WAY
BARLOW ROAD
OHIO LANE
WICHITA
NEVADA CIRCLE
INDIANA LANE
NINA CIRCLE
AUBURN LANE
NEWMAN ROAD
PHOENIX CIRCLE
TAMPA CIRCLE
IDAHO CIRCLE
ALABAMA
CHAPEL HILL LANE
MACON CIRCLE
1
2
3
4
5
EAST ROCHAMBEAU DRIVE
FENTON MILL ROAD
OT ROAD
ROUTE 199
DRIVE
OAKTREE ROAD
N
E
W
S
Public Wells
May 16, 2001
Prepared by York County
Computer Support Services

public water. These areas are listed in the Utilities Strategic Capital Plan with the projected time schedule for those projects to be started by the year 2006. In addition to those areas where water extension projects are under way, future water service areas included in the Plan are Kay Lane, Schenck Estates, Kentucky Farms, Cheadle Loop, Burts Road, Lewis Drive, Russell Lane, Old Quaker Estates, Skimino Farms, Elliott Road, Queens Lake, Carver Gardens, York Terrace, Nelson Park, Patricks Creek and Charles Road.

The water extensions are funded in the same manner as the sewer extensions. However, since most of the developer extensions of public water are part of the Newport News Waterworks distribution system the County does not receive any revenue from these connections.

CHANGES SINCE 1991

Since the adoption of the Comprehensive Plan in 1991, County utilities have undergone significant changes. Most notable has been the implementation of the Target 2000 plan, which was an integrated five-year utilities capital plan approved by the Board of Supervisors on September 2, 1993. This plan is regularly updated. The current plan, now titled Utilities Strategic Capital Plan, is the biennial update approved in 1999. mplementation of these plans has led to the completion of sanitary sewer extension projects in the following areas:

- Lackey
- Seaford
- Dandy
- Lightfoot
- Cary's Chapel Road
- Queens Creek Road
- Tabb Terrace and Mill Cove
- Greensprings
- Landing Road
- York County Utilities office and shop
- IDA industrial shell building
- Dare, Phases I and II
- Calthrop Neck
- Old Lakeside/Patricks Creek

Additional sewer extension projects are currently under way in Dare Phases III and IV, Tidemill Road, Dare Heights, Claxton Creek, Seaford extension, and Barcroft.

Several sewer service upgrades have also been completed. The aging sewer lines in Middletown Farms were upgraded using a new technique in which the interior of the pipes were slip-lined with a flexible tube that, upon curing, formed a new pipe. The technique, called Insituform, was used to minimize costs and eliminate the need to dig up the streets. In addition, there have been many existing gravity sewer systems and pump stations that have been upgraded. .

Water extension projects have been completed in the following areas:

- Riverside Drive
- Jonadab Lane
- Brook Lane
- Marine Circle
- Whites Road
- Woodland Drive
- Lightfoot
- Oyster Cove Road
- Old Lakeside Drive
- Wildey Road

- Penniman Road
- Bay Tree Beach
- Springfield Terrace
- Dare, Phases I and II

The Fire Hydrant Installation Program, which started in 1988, has also been completed, installing a total of 121 fire hydrants in neighborhoods previously unprotected by this service. Water extension projects are currently under way in Dare (Phases III and IV)